Inventing America: The Early American Energy Challenge

Due: Thursday, Oct. 15

Overview:

We think of the early American era (roughly from the French & Indian War up to the Jackson presidency) as a time of old men in white wigs. Sure, there was lots of fuss over the British, lots of arguing about independence, lots of failures in governing...but most of us think of the "Founding Fathers" when we think of this time. What we don't often think of is how it was to live as an average citizen during this time. If you didn't live in a city and had no bread, you had to bake it yourself. And since you probably didn't have flour, you had to grind IT yourself. No water in the kitchen? Go fetch it, on foot and by hand. Got bags of grain to store in the barn? There were no tractors, no elevators, no gas, no electricity - you had to figure out how to get that *@##&* grain into the barn loft.

This challenge puts you in the position of an average early American. You'll randomly select a common energy source used at that time (wind, water, or animal power) and a task to be accomplished. Using your skills as good team members, effective problem solvers, and fearlessly creative mechanical engineers, you will then design a solution to that task and build a functional demonstration of it.

Details:

Students will be working in groups of three to design and build a functioning energy demo. This machine must incorporate a means of harnessing the energy, transferring it to the task, and accomplishing the task. Each group will have three defined roles (mechanical engineer, industrial designer, and project manager) but everyone will be expected to contribute to every part of the demo.

Required Mechanical Components:

- A means of harnessing energy (usually motion) from your energy source
- A means of mechanically transferring that energy
- A means of accomplishing the specific task

Required Demonstration:

- Video *(3 minutes maximum)* documenting the creation process and function of your instrument, including:
  - Explanation of the design and construction process of your demo, including your creative mechanical and industrial engineering decisions
  - Demonstration of the functioning unit
  - Explanation of your Edison moments

Required Documentation:

- Each team member will keep a blog documenting their ideas, contributions, and progress